



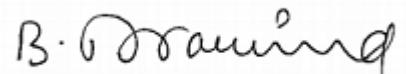
## Test Report

Prepared for Harman International Industries, Inc.

This report presents Maximum Permissible Exposure for

### INFO3.8 CSM

Prepared by



Aravind Buddana

Engineer II

Approved by



Jason Kanakry

General Manager

Issue date: 08/07/2023

Report No: AH22120901-HAR-054\_FCC\_MPE v2

This test result relates only to the described test object.

This document shall not be reproduced, except in full, without the written approval of Bureau Veritas Test Lab.

Customer must not use this test report as the product certification of each accreditation body or each national organization.

The test is traceable to national standard or related international standard

Contents

1. Test Request Information.....3

2. Test Laboratory Information.....4

3. RF Exposure .....5

## 1. Test Request Information

|                                   |                                                                                                         |
|-----------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Test Request #:</b>            | 7700182070                                                                                              |
| <b>Test Requested By:</b>         | Mark Bowman<br>Harman International Industries, Inc.<br>30001 Cabot Drive, Novi, MI 48377               |
| <b>Test item Description:</b>     | INFO3.8 CSM                                                                                             |
| <b>Part Number:</b>               | 8709305                                                                                                 |
| <b>DUT Sample Number:</b>         | AH22120901-HAR-054#1                                                                                    |
| <b>Hardware Version of DUT:</b>   | PV                                                                                                      |
| <b>Software Version of DUT:</b>   | 17.80.200.219                                                                                           |
| <b>Component Category of DUT:</b> | N/A                                                                                                     |
| <b>FCC ID:</b>                    | 2AHPN-BE2867                                                                                            |
| <b>Type of Test:</b>              | FCC/ISED Certification                                                                                  |
| <b>Test Method:</b>               | CFR Title 47 FCC Part 15.247, 1.1307, 1.1310, 2.1091<br>KDB 447498 D04 General RF Exposure Guidance v01 |
| <b>Deviations from standard:</b>  | None                                                                                                    |
| <b>Approved Test Plan Number:</b> | N/A                                                                                                     |
| <b>Test Plan Revision:</b>        | N/A                                                                                                     |
| <b>Date test sample received:</b> | 10-07-2022                                                                                              |
| <b>Date test started:</b>         | 12-08-2022                                                                                              |
| <b>Date test finished:</b>        | 03-13-2023                                                                                              |

## 2. Test Laboratory Information

|                                   |                                                                                                                                                                                                                                 |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Location of Test Lab:</b>      | The radiated and conducted emissions test sites are located at<br>Bureau Veritas<br>815 N. Opdyke Rd #100,<br>Auburn Hills, MI 48326,<br>Phone: +1-248-836-4700                                                                 |
| <b>Key Contact:</b>               | Jason Kanakry (General Manager)<br>Jason.Kanakry@BureauVeritas.com<br>Phone: +1-248-836-4747                                                                                                                                    |
| <b>Laboratory Accreditations:</b> | BUREAU VERITAS CONSUMER PRODUCTS SERVICES, INC is accredited in accordance<br>with the recognized International Standard ISO/IEC 17025:2017 General requirements<br>for the competence of testing and calibration laboratories. |
| <b>ISO/IEC 17025:2017:</b>        | 5678.01                                                                                                                                                                                                                         |
| <b>FCC Test Site Number:</b>      | US1278 (242530)                                                                                                                                                                                                                 |
| <b>IC Test Site Number:</b>       | US0229 (26240)                                                                                                                                                                                                                  |

### 3. RF Exposure

#### 3.1 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as Mobile Device.

#### 3.2 Max Conducted Power and Antenna Information

| Band             | Antenna Type           | Max Conducted Power (dBm) | Max Conducted Power (mW) | EIRP (W)    | ERP(mW)     | Antenna Gain (dBi) |
|------------------|------------------------|---------------------------|--------------------------|-------------|-------------|--------------------|
| BLE              | Integrated PCB antenna | -0.217                    | 0.951261675              | 0.003769641 | 2.297735319 | 5.98               |
| BT Classic       | Integrated PCB antenna | 2.755                     | 1.885818969              | 0.007473086 | 4.555121862 | 5.98               |
| WLAN 2.4G        | Integrated PCB antenna | 10.667                    | 11.66003892              | 0.021071721 | 12.84399122 | 2.57               |
| WLAN 5G (UNII-1) | Integrated PCB antenna | 13.457                    | 22.16664673              | 0.060911599 | 37.12786703 | 4.39               |
| WLAN 5G (UNII-3) | Integrated PCB antenna | 9.533                     | 8.980489305              | 0.028727643 | 17.51055857 | 5.05               |

#### 3.3 Calculation for MPE

##### Simultaneous Transmission Configuration-1

| Band             | Transmit Frequency (MHz) | $\lambda/2\pi$ (m) | Separation Distance (m) | Radio Power (dBm) | Radio Power (W) | Antenna Gain (dBi) | Antenna Gain (Lin eq.) | ERP (W)     | Threshold ERP (W) | Result ERP(W)/ERPth |
|------------------|--------------------------|--------------------|-------------------------|-------------------|-----------------|--------------------|------------------------|-------------|-------------------|---------------------|
| BLE              | 2402                     | 0.019864051        | 0.2                     | -0.217            | 0.000951262     | 5.98               | 3.9627803              | 0.002297735 | 0.768             | 0.002991843         |
| 2.4G WLAN        | 2462                     | 0.019379956        | 0.2                     | 10.667            | 0.011660039     | 2.57               | 1.8071741              | 0.012843991 | 0.768             | 0.016723947         |
| 5G WLAN (UNII-1) | 5240                     | 0.009105621        | 0.2                     | 13.457            | 0.022166647     | 4.39               | 2.7478942              | 0.037127867 | 0.768             | 0.048343577         |

ERP(W) of Simultaneous Transmission Configuration-1 of BLE + 2.4G WLAN + 5G WLAN (UNII-1) = 0.052269593 is less than equal to ERP Threshold.

##### Simultaneous Transmission Configuration-2

| Band             | Transmit Frequency (MHz) | $\lambda/2\pi$ (m) | Separation Distance (m) | Radio Power (dBm) | Radio Power (W) | Antenna Gain (dBi) | Antenna Gain (Lin eq.) | ERP (W)     | Threshold ERP (W) | Result ERP(W)/ERPth |
|------------------|--------------------------|--------------------|-------------------------|-------------------|-----------------|--------------------|------------------------|-------------|-------------------|---------------------|
| BT Classic       | 2480                     | 0.019239295        | 0.2                     | 2.755             | 0.001885819     | 5.98               | 3.9627803              | 0.004555122 | 0.768             | 0.005931148         |
| 2.4G WLAN        | 2462                     | 0.019379956        | 0.2                     | 10.667            | 0.011660039     | 2.57               | 1.8071741              | 0.012843991 | 0.768             | 0.016723947         |
| 5G WLAN (UNII-1) | 5240                     | 0.009105621        | 0.2                     | 13.457            | 0.022166647     | 4.39               | 2.7478942              | 0.037127867 | 0.768             | 0.048343577         |

ERP(W) of Simultaneous Transmission Configuration-2 of BT Classic + 2.4G WLAN + 5G WLAN (UNII-1) = 0.05452698 is less than equal to ERP Threshold.

### Simultaneous Transmission Configuration-3

| Band             | Transmit Frequency (MHz) | $\lambda/2\pi$ (m) | Separation Distance (m) | Radio Power (dBm) | Radio Power (W) | Antenna Gain (dBi) | Antenna Gain (Lin eq.) | ERP (W)     | Threshold ERP (W) | Result ERP(W)/ERPth |
|------------------|--------------------------|--------------------|-------------------------|-------------------|-----------------|--------------------|------------------------|-------------|-------------------|---------------------|
| BLE              | 2402                     | 0.019864051        | 0.2                     | -0.217            | 0.000951262     | 5.98               | 3.9627803              | 0.002297735 | 0.768             | 0.002991843         |
| 2.4G WLAN        | 2462                     | 0.019379956        | 0.2                     | 10.667            | 0.011660039     | 2.57               | 1.8071741              | 0.012843991 | 0.768             | 0.016723947         |
| 5G WLAN (UNII-3) | 5795                     | 0.008233555        | 0.2                     | 9.533             | 0.008980489     | 5.05               | 3.1988951              | 0.017510559 | 0.768             | 0.022800206         |

ERP(W) of Simultaneous Transmission Configuration-3 of BLE + 2.4G WLAN + 5G WLAN (UNII-3) = 0.032652285 is less than equal to ERP Threshold.

### Simultaneous Transmission Configuration-4

| Band             | Transmit Frequency (MHz) | $\lambda/2\pi$ (m) | Separation Distance (m) | Radio Power (dBm) | Radio Power (W) | Antenna Gain (dBi) | Antenna Gain (Lin eq.) | ERP (W)     | Threshold ERP (W) | Result ERP(W)/ERPth |
|------------------|--------------------------|--------------------|-------------------------|-------------------|-----------------|--------------------|------------------------|-------------|-------------------|---------------------|
| BT Classic       | 2480                     | 0.019239295        | 0.2                     | 2.755             | 0.001885819     | 5.98               | 3.9627803              | 0.004555122 | 0.768             | 0.005931148         |
| 2.4G WLAN        | 2462                     | 0.019379956        | 0.2                     | 10.667            | 0.011660039     | 2.57               | 1.8071741              | 0.012843991 | 0.768             | 0.016723947         |
| 5G WLAN (UNII-3) | 5795                     | 0.008233555        | 0.2                     | 9.533             | 0.008980489     | 5.05               | 3.1988951              | 0.017510559 | 0.768             | 0.022800206         |

ERP(W) of Simultaneous Transmission Configuration-4 of BT Classic + 2.4G WLAN + 5G WLAN (UNII-3) = 0.034909672 is less than equal to ERP Threshold.

Notes:-

- Minimum separation distance must be  $\geq \text{wavelength}/2\pi$  meters  
Where Wavelength =  $\text{Transmit Frequency} \times 10^6$
- Threshold ERP as per Transmit frequency

| RF Source frequency (MHz) | Threshold ERP (watts) |
|---------------------------|-----------------------|
| 0.3-1.34                  | $1,920 R^2$           |
| 1.34-30                   | $3,450 R^2 / f^2$     |
| 30-300                    | $3.83 R^2$            |
| 300-1,500                 | $0.0128 R^2 f$        |
| 1,500-100,000             | $19.2 R^2$            |

### 3.4 Conclusion

The maximum calculations of above situations, the ERP (W) is less than equal to ERP Threshold.

## Document Revisions

| Version | Date       | Modifier        | Changes                                                                                                                                                                                           |
|---------|------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.0     | 03/14/2023 | Aravind Buddana | <ul style="list-style-type: none"><li>Initial release</li></ul>                                                                                                                                   |
| 2.0     | 08/07/2023 | Aravind Buddana | <ul style="list-style-type: none"><li>Updated the Test Request Information with appropriate test method</li><li>Updated the Test Report with simultaneous transmissions configurations.</li></ul> |

End of Report